



PROGRAMME FUNDED BY THE EU



The practical experiences from EPC consulting services

Bengt Månsson, Stig Lundberg, Magnus Klahr

ITS Combined Event on lessons learned on ESCO, RWP.09
Stockholm, Sweden, 9-11 February 2016

BUILDING PARTNERSHIPS FOR ENERGY SECURITY

www.inogate.org

1. Initiation of project

- 1.2. Conclusions from completed feasibility study, other investigations and collected data.

Barriers:

- *Why EPC and not a conventional method?*

Solution:

- *Guaranteed saving*



www.inogate.org



1. Initiation of project



- 1.3. Decide the property portfolio to be considered in a proposed project.

Barriers:

- *Clients would like to include all buildings with highly neglected maintenance.*

Solution:

- *All neglected maintenance cannot be paid for by savings in energy.*



1. Initiation of project



- 1.5. Decide strategies for two systems in a proposed project.

Barriers:

- *Normally there is a mix of different systems and they are not compatible.*

Solution:

- *Streamlining.*

1. Initiation of project



- 1.6. Data collection for the property portfolio to be considered in a proposed project



Barriers:

- *Lack of staff to do the work. They are normally busy in their day to day work.*

Solution:

- *The project work must be given priority. **No outcome without input.***

1. Initiation of project



- 1.7. Scope; *What should a proposed project include.*

Barriers:

- *Property directors hope to solve the problem of all neglected maintenance.*

Solution:

- *All neglected maintenance cannot be paid for by savings in energy.*

1. Initiation of project



1.9. Decision making process

Barriers:

- Questions by economists, directors and trustees about the validity of the savings guarantee;
- *Is it a real guarantee?*



Solution:

- *Visit clients that have carried out EPC projects and study how effective the savings guarantee had proved to be.*

2.Preparations



- 2.1. Appoint project organization for Preparations and Phase 1.

Barriers:

- *Some clients do not from the beginning understand the extent of work it takes to carry out an EPC project.*

Solution:

- *Visit clients that have carried out EPC projects and get information about their organization.*

2.Preparations



2.2 Procurement

- 2.2.1 Prepare basis of tender

Barriers:

- *No client has run an EPC project earlier. It takes time to understand the project design and the implications.*



Solution:

- *To allocate sufficient time for review of the documents*

2.Preparations



- 2.2.7 Examination of tenders and award of contract

Barriers:

- *Difficulties to follow Public Procurement Act (PPA).*

Solution:

- *To have extensive knowledge about PPA and while needed get advice from expert lawyers on Public Procurement.*

3.Phase 1 “Project development”



- 3.1. Participate in meetings with the ESCO

Barriers:

- *Poor performance of ESCO's energy auditors. The energy efficiency measures are of substandard.*

Solution:

- *Issue notification of defects to ESCO and demand rectification and improvement*



3.Phase 1 “Project development”



- 3.2. Minutes from the project- and technology meetings

Barriers:

- *Incorrect or contradictory formulations*

Solution:

- *Careful reading and demand adjustments.*

4.Phase 2 “Project implementation”



- 4.1. Appoint project organization for Phase 2

Barriers:

- *The extent of client’s work in Phase 2 is much greater than in phase 1.*

Solution:

- *Increase the set of persons.*

4.Phase 2 “Project implementation”



- 4.3. Check adjust and confirm the minutes from the site-, design- and economy meetings.

Barriers:

- *Incorrect or contradictory formulations.*

Solution:

- *Careful reading and demand adjustments.*

4.Phase 2 “Project implementation”



- 4.7. Scrutinize the design documents prepared by the ESCO; civil works, ventilation-, heating and sanitation-, electrical-, cooling-, climate control and communication systems.

Barriers:

- *Incorrect or substandard documents;*
- *Lack of time for checking.*



Solution:

- *Demand adjustments and improvements.*

4.Phase 2 “Project implementation”



- 4.8. Time schedule for execution of contract works

Barriers:

- *Delay by ESCO.*

Solution:

- *Impose fine according to agreement.*



Download from
Dreamstime.com
This watermark stamp image is for preview purposes only.

40815820
Rudolfstrummer | Dreamstime.com

4.Phase 2 “Project implementation”



- 4.9. Handle Alterations and Additions

Barriers:

- *ESCO claiming additions for work included in the contract;*
- *The EPC contract is a performance contract;*
- *The ESCO is responsible for design work and execution so as to achieve the technical performance and the energy savings.*

Solution:

- *Well formulated contract agreements;*
- *Tirelessly defending client’s rights under the contract*

4.Phase 2 “Project implementation”



- 4.10. Invoice-verification for Contract works and Alterations and Additions

Barrier:

- *ESCO claiming payments for works not yet carried out.*

Solution:

- *Visit the actual work spots to verify extent of work carried out.*



4.Phase 2 “Project implementation”



- 4.11. Final Inspection of works

Barriers:

- *ESCO protesting against noted defects in inspection report;*
- *Delay by ESCO in rectification of defects.*

Solution:

- *Proper and detailed description of works in the agreement;*
- *Impose fine for delay according to agreement.*



4.Phase 2 “Project implementation”



- 4.13. *Administer rectification of defects appearing during the Guarantee period*
- The ESCO is during the Guarantee period responsible for rectification of defects appearing in materials and goods, execution and performance / functioning.

Barriers:

- *ESCO rejecting responsibility for the reported defects;*
- *Delay by ESCO in rectification of defects.*

Solution:

- *Proper and detailed description of works in the agreement;*
- *Impose fine for delay according to agreement.*

4.Phase 2 “Project implementation”



- 4.14. Guarantee inspection

Barriers:

- *ESCO protesting against noted defects in the guarantee inspection report;*
- *Delay by ESCO in rectification of defects.*

Solution:

- *Proper and detailed description of works in the agreement;*
- *Impose fine for delay according to agreement.*

5.Phase 3 “Project Follow up”



- 5.5. Report to ESCO such changes in buildings or use of buildings that have impact on the energy savings guaranteed by the ESCO

Barriers:

- *The client do not keep track on changes with a result that the follow up work becomes problematic.*

Solution:

- *Develop a system to make it easy for the property managers to report.*

5.Phase 3 “Project Follow up”



- 5.7. Energy optimization



Barriers:

- *The client does not give priority to this. If he did there will be still more savings.*

Solution:

- *Create incentives for own staff;*
- *Employ energy hunters.*

5.Phase 3 “Project Follow up”



- 5.9. Participate in annual Meetings with the ESCO



Barriers:

- *Mistakes in the calculations submitted by the ESCO.*

Solution:

- *Total checking and verification by using the Excel-sheet.*

About the software Certus



- The calculations are performed according the DUR-method
- Adjustments are made for the building's unique influence from the outside temperature
- Based on purchased energy, which avoids large uncertainties
- Follow-up on a monthly basis
- A property owner can fill in all the details and include the program to the Agreement
- Each building will have its own profile of its impact from the outdoor temperature
- It provides clear information in order to optimize operation of buildings
- It is based on the published book with the title.....
- Certus is today used by several major property owners in Sweden

The DUR-method is also designed to prescribe and monitor the energy requirements for new buildings. It is today included in contracts for new constructions in Sweden.